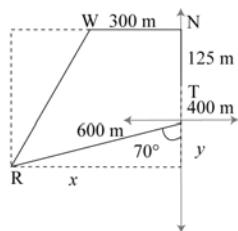


Assessment Schedule – 2009**Mathematics: Solve right-angled triangle problems (90152)****Evidence Statement**

| Question | Achievement | Achievement with Merit | Achievement with Excellence | |
|------------|--|--|---|--|
| | Solve right-angled triangle problems | Solve problems in practical situations involving right-angled triangles. | Solve problems in word or 3D situations | |
| ONE (a) | SF = 10.3 m | | | A = 1 of 1(a) or 1(b)(i) M = A + 1(b)(ii) E = A + 1(c) |
| (b)(i) | $WN = \sqrt{325^2 - 125^2} = 300 \text{ m}$ | | | |
| (b)(ii) | | Bearing = $90^\circ + 22.6^\circ = 113^\circ$ | | |
| (c) | $y = \text{Vertical cpt of RT}$ $= 600 \times \sin 20^\circ = 205 \text{ m}$ $x = \text{Horizontal cpt of RT}$ $= 600 \times \cos 20^\circ = 564 \text{ m}$ | $\rightarrow \text{vertical cpt of RW} = 125 + 205 + 400 = 730 \text{ m}$ $\rightarrow \text{horizontal cpt of RS} = x - 300 = 264 \text{ m}$ |  $TN = \sqrt{700^2 + 264^2}$ $= 776.2 \text{ m}$ | |
| TWO (a) | $\tan^{-1} \left(\frac{140}{110} \right) = 51.8^\circ$ | | | A = 1 of 2(a) or 2(b)(i) M = A + 2(b)(ii) E = 2(b)(iii) |
| (b)(i) | $67 \tan 53 = 88.9 \text{ m}$ | | | |
| (b)(ii) | | $KM = 133 \div \sin 53^\circ = 166.5 \text{ m}$ | | |
| (b)(iii) | $\text{vertical cpt of MK} = 2 \times \text{radii} + 1$ $= 133 \text{ m}$ $\rightarrow \text{horizontal cpt of MK}$ | $\rightarrow \text{vertical cpt of ML} = 160 \times \sin 55 = 131 \text{ m}$ $\rightarrow \text{horizontal cpt of ML} = 160 \times \cos 55 = 91.7 \approx 92 \text{ m}$ | $\rightarrow \text{vertical cpt of KL}$ $= 133 - 131 = 2 \text{ m}$ $\rightarrow \text{horizontal cpt of KL}$ | |

| | | | | |
|-----------------------|---|---|---|--|
| | $= 133 \div \tan 53 = 100\text{m}$ | | $= 100 - 92 = 8 \text{ m}$ → distance $KL = \sqrt{8^2 + 2^2}$ $= 8.4 \text{ m}$ | |
| Alternate (b)(iii) | CL is 66 Equal radii Vert cpt of ML = $160 \sin 55 = 131.1$ Vert dist of KL = $133 - 131.1 = 1.9$ | vert dist of CL = $66 - 1.9 = 64.1$ Hor dist $KL^2 = 66^2 - 64.1^2 = 247.19$ Hor dist of KL = 15.72 | $KL^2 = 15.72^2 + 1.9^2 = 250.8$ KL = 15.84 | |

Judgement Statement

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|--|--|
| Solve right-angled triangle problems. 2 A | Solve problems in practical situations involving right-angled triangles. 1 A + 1 M OR 1 A + 1 E OR 2 M | Solve problems in word or 3D situations. 1 M + 1 E OR 2 E |

Lower case **a**, **m**, **e** may be used throughout the paper to indicate contributing evidence for overall grades for questions. The circled upper case **A**, **M** and **E** grades shown at the end of each full question are used to make the final judgement.

The following Mathematics-specific marking conventions may also have been used when marking this paper:

- Errors are circled.
- Omissions are indicated by a caret (^).
- **NS** may have been used when there was not sufficient evidence to award a grade.
- **CON** may have been used to indicate 'consistency' where an answer is obtained using a prior, but incorrect answer and **NC** if the answer is not consistent with wrong working.
- **CAO** is used when the 'correct answer only' is given and the assessment schedule indicates that more evidence was required.
- **#** may have been used when a correct answer is obtained but then further (unnecessary) working results in an incorrect final answer being offered.
- **RAWW** indicates right answer, wrong working.
- **R** for 'rounding error' and **PR** for 'premature rounding' resulting in a significant round-off error in the answer (if the question required evidence for rounding).

- **U** for incorrect or omitted units (if the question required evidence for units).
- **MEI** may have been used to indicate where a minor error has been made and ignored.